

National Collection. Paratypes collected August, 1941 September 1941, December 1941, February 1942, and August 1942, deposited in National Collection, in Maryland Agricultural Experiment Station Collection, and in author's collection.

This species resembles *A. obscura* (Parrott), but can be distinguished from *obscura* in that the posterior ends of the band of tuberculate setae are much more expanded, and the band of tubular ducts with several filamentous inner prolongations contains fewer ducts.

Apparently there is only one generation each year.

AN APPARENTLY NEW SPECIES OF PAUROCEPHALA CRAWFORD (Homoptera, Psyllidae, Pauropsyllinae)

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This paper is published in order to provide a name for a psyllid which is reported to be of economic importance. The species was received from R. L. Steyaert, Division de Phytopathologie, Institut National pour l'Etude Agronomique au Congo Belge, with the information that it was responsible for a very destructive disease of *Gossypium* in the southern cotton belt of the Belgian Congo. He also stated that the injury caused by the insects was similar in many respects to psyllid damage to potatoes and tomatoes in the United States.

The species appears to be congeneric with *psylloptera* Crawford, the type of the genus *Paurocephala*. It differs from species previously described in the genus in several characters, the most conspicuous of which probably is the presence of prominent peglike teeth on the inner surface of the claspers.

***Paurocephala gossypii*, new species.**

Adults.—Length to tip of folded wing, 1.80 mm.; length of body as mounted on slide, 2 mm.; length of fore wing, 1.45 mm., width, 0.55; length of hind wing, 1.25 mm., width, 0.45; width of head, 0.50 mm.

Color pale yellow with dark-brown markings located as follows: Eyes, last 2 antennal segments, tip of labium, anterior tarsi and claws, tegula of fore wings and a spot at end of veins (before end of anal vein) and on radius, a spot at ends of posterior 5 tergites of female and at ends of first dark abdominal tergite of male, inner surface of claspers; also in male (and occasionally but not characteristically in female), vertex dorsally, pronotum, 4 stripes or 2 elongate spots extending from mesoscutum to mesoscutellum and joined by a cross bar at base of mesoscutum, a transverse bar on metascutum, central portion of posterior 5 (faint in center of last 2) tergites.

Head as wide as thorax, strongly deflexed, reticulate. Vertex rounded forward and downward, posterior ocelli on elevations, a pair of foveae mesocephalad of elevations, genae not swollen, they and vertex with a few small

setae. Frons well defined, anterior ocellus at its upper end. Antennae as long as width of head, 10-segmented, relative size of segments as illustrated; segments 5 and 7 without setae, segments 1-5, 6, and 8 with at least 1 small seta, segment 9 with 2 large, stout setae at outer end, segment 10 with a large, stout, apical and preapical seta and a minute seta at base of each of them; segment 2 with a small sensorium and segments 4, 6, 8, and 9 each with a large one; segments 1 and 2 reticulate, others encircled by sclerotized ridges or minute points. Clypeus triangular, elongate, reticulate, with 2 pairs of setae near base; labium with 2 pairs of setae just before brown spot and 2 pairs at tip.

Thorax strongly arched, reticulate, with a few small setae; pronotum nearly perpendicular; metascutellar tubercle small, rounded. Fore wings transparent, with a prominent pterostigma, shape and venation as illustrated; all cells except subcostal, and pterostigma, with minute dots (not close to veins); veins with minute setae; lower surface with a narrow marginal band of minute points starting at humeral angle and terminating on Cu_2 , upper surface with a less conspicuous marginal band extending from R_1 to Cu_1 ; small square or rectangular designs on inner margin at base and before anal vein. Hind wings with minute points; costal margin with 3 or 4 setae near base, 3 or 4 beyond these, and 1 near center; 4 smaller ones on $R+M+Cu$, 2 opposite each group on margin. Legs slender, tibiae without a spur at base; posterior tibia with 7-9 sharp, slender, spinelike setae at apex, other tibiae with 6 or 7 slightly smaller ones; each tarsal segment with a sensorium on upper surface; tarsi each with 1 digitule, surpassing claws; posterior femur with 3 sensoria near center of inner margin; trochanters each with an irregular band of sensoria; legs encircled by bands of minute points except for some eye-shaped areas on femora. Metacoxal spurs of moderate size, longer than wide.

Abdomen with a row of small, slender setae on each sclerotized tergite and a row of longer setae on each sclerotized sternite, a cluster of spines at each end of anterior sclerotized tergite, most of surface with minute points. Seven pairs of spiracles, derm around or on one side of opening sclerotized, atria elongate, larger at opening than at inner end, walls sclerotized. Membrane behind posterior tergite in male with a small, median, sclerotized area.

Genitalia of female deflexed perpendicularly, a little more than one-half the length of rest of distended abdomen. Dorsal valve with a pair of median lobes at base; circumanal ring longer than wide, somewhat diamond-shaped, consisting of an inner row of elongate pores placed side by side and an outer row of minute circular pores, also a faint half ellipse of elongate pores located transversely just anterior to widest part of ring on dorso-lateral surface; valve moderately narrowed, apex subacute, curved outward, and extending slightly beyond ventral valve; short setae at intervals around ring, 8 elongate ones in a row slightly nearer ring than apex, a few shorter ones anterior to outer elongate ones and numerous minute to small ones between elongate ones and apex. Ventral valve strongly narrowed from center, 8 or 10 elongate setae opposite those on dorsal valve and a few shorter ones scattered to apex.

Genitalia of male with a row of 8 slender setae on ventral valve. Proctiger moderately stout, about one-fourth longer than wide, as long as claspers; a distinct membranous line on each side of ventral surface separating off a pair of swollen areas, these and outer part of organ with small to fairly large setae,

Claspers strongly curved; 3 or 4 (usually 3) pairs of strong, peglike teeth set in sockets on inner surface, slightly nearer base than apex; a ridge with shallow sawlike teeth extending along upper edge of inner surface from outer peglike tooth to apex; minute setae on apex and longer setae elsewhere except on outer basal area. Aedeagus swollen near apex.

Fifth-stage nymph.—Length as mounted, 1.25 mm. Rather elongate, eyes bulging slightly beyond margin of head and thorax, wing pads projecting outward and backward, prominent processes bearing sectasetae extending beyond margin of abdomen posteriorly, median molting suture apparent from anterior margin of head to posterior sclerotic plate. Derm predominantly whitish or pale yellowish but brownish color of varying intensity located as follows: Distal antennal segment, sclerotic plates of head and thorax, basal part of both wing pads and inner apical portion of fore wing pads; first, second, third, fourth, and median portion of posterior abdominal sclerotic plates.

Sclerotic plates present dorsally, only posterior one extending across median line, pairs arranged as follows: Head, 1 roughly oblong; prothorax, 1 transverse, weakly separated from one on head, also 2 lightly sclerotized transverse spots (along suture) posterior to plate; mesothorax, 1 inner and 1 outer, both slightly longer than wide, also a lightly sclerotized linear one (along suture) posterior to larger plates and a linear one extending cephalad between outer plate and wing pad; metathorax, 1 transverse, and 2 linear ones similar to those on mesothorax; abdomen, 1 transverse, 2 short, lightly sclerotized, transverse spots (apparently along suture), 3 transverse. Also 1 plate covering posterior 4 abdominal segments; each segment of this plate and the pair of transverse plates immediately anterior to it terminating laterally in a conspicuous process, the processes becoming successively larger near end of abdomen. Dorsal surface of wing pads (except portion of hind pad covered by fore pad) sclerotized similarly to plates. Larger sclerotic plates and wing pads bearing sectasetae arising from tubercle-like prominences, the sectasetae fairly acute at tip, 10–45 μ long, inner ones often stouter than outer ones, arranged approximately as follows on each half of body: Head, 7–11; prothorax, 11; mesothorax, inner plate 4 or 5, outer plate 7; metathorax, 8; anterior abdominal, 3 or 4; each of next 3 transverse plates, 5–7 (2 on process of last one); each of anterior 3 segments of posterior plate, 1 median (unpaired) and 6–8 others (anterior 2 processes each with 3, posterior process with 4); posterior segment of plate, 6 (1 between penultimate and posterior processes, 2 dorsally and 2 on outer margin of process, and 1 at apex); fore wing pad, usually 6–11 dorsally (sometimes nearly all replaced by other setae). 18–21 around margin with a large one usually alternating with a smaller one; hind wing pad, usually 4 or 5 (sometimes replaced by other setae) dorsally and 2 marginal at apex. Sclerotic plates and wing pads also with minute to small, thick, blunt, stublike or swollen setae scattered among (or occasionally replacing) sectasetae. Posterior segment dorsally with a pair of slender, curved, depressed lines.

Antennae, mouthparts, legs, a small area around each spiracle, and a curved area posterior to circumanal ring lightly sclerotized. Antennae arising beneath margin of head; basal segment of each, short, broad, and with 2 setae; second segment longer and with 3 small setae, 1 sectaseta, and 1 sensorium; third segment elongate, bearing 2 small setae near base, 2 whorls of 4 sectasetae each, 2

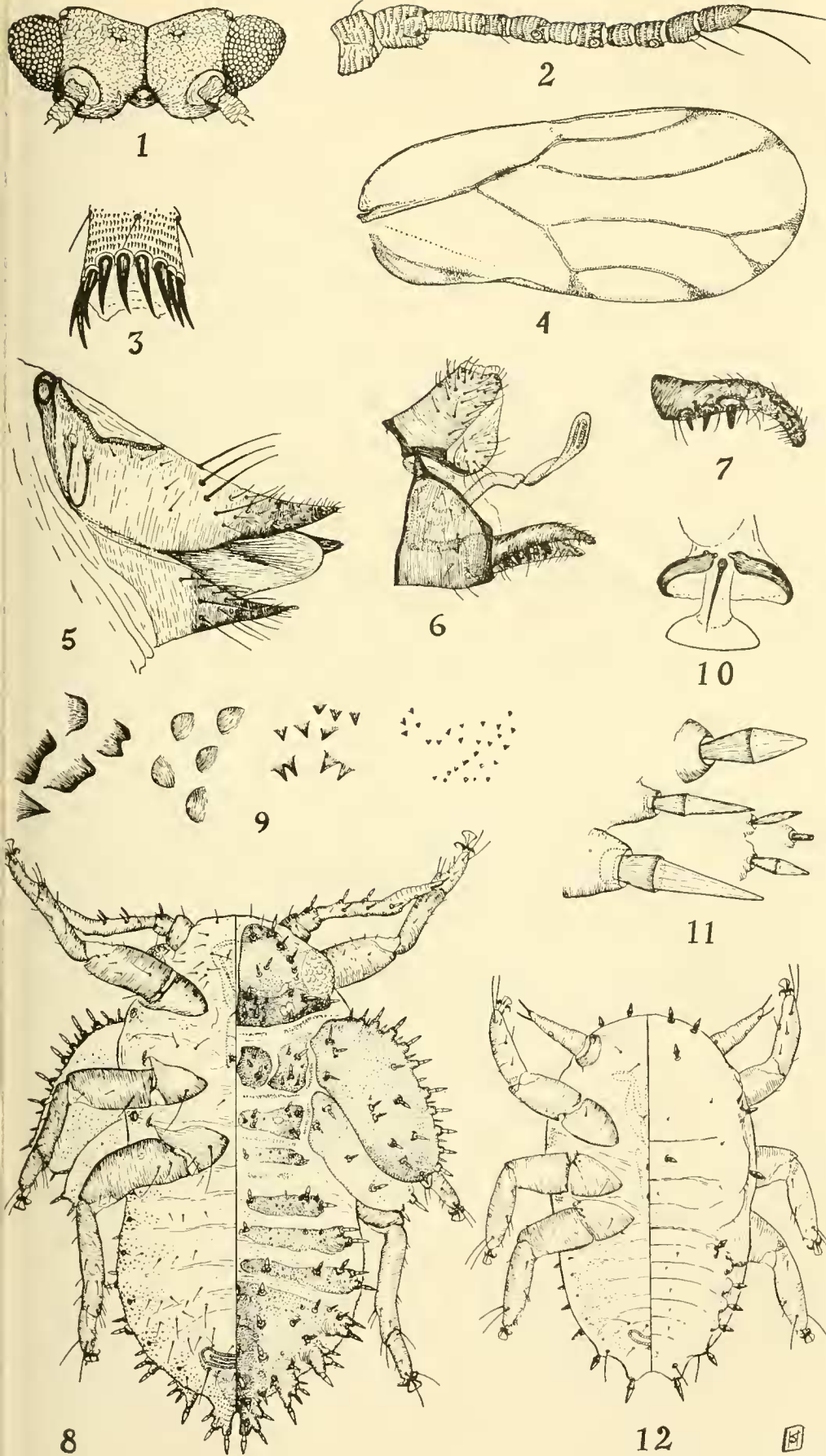
sectasetae just beyond middle of segment, a large sensorium with a small stout seta, a preapical and apical large stout seta each with a minute sensorium and seta at base; apex (beside seta) stout spinelike. Clypeus triangular, elongate, a pair of setae at base; labrum without setae; labium with a pair of setae at base, a pair near center, and apparently 3 pairs at tip. Legs without trochanters, each with 1 tarsal segment; 2 tarsal digitules, surpassing claws; empodium somewhat triangular; 4 or 5 sensoria near base and 2 near center on inner margin of each femur, 1 on outer margin near center of each tarsus; posterior tibiae about one-third longer than others; slender setae on each segment. Seven pairs of abdominal spiracles, walls of atria sclerotized, somewhat tubular but swollen at opening. Slender setae present ventrally, arranged segmentally on abdomen, 1 pair also present dorsally near margin of head. Circumanal ring located ventrally before apex of abdomen, transverse, its ends curved cephalad, composed of an outer distinct, and an inner obscure, row of elongate pores placed side by side; a pair of close-set setae anterior, and a contiguous pair posterior, to center of ring.

Derm between sclerotic plates, on ventral surface of wing pads and body, membranous; also with characteristic ornamentation which is relatively large, rounded, and rugose dorsally and over the anterior margin of the head, but which is more acute and toothlike on the abdomen from ends of sclerotic plates to spiracles, and is spinelike mesad of abdominal spiracles, around thoracic spiracles and on ventral surface of wing pads; spinelike areas decreasing in size to minute points medially.

EXPLANATION OF PLATE 11.

- Figure 1. *Paurocephala gossypii*. Head from front. x 70.
 Figure 2. Antenna, x 115.
 Figure 3. Apex of hind tibia, x 230.
 Figure 4. Forewing, x 40.
 Figure 5. Female genitalia, x 87.
 Figure 6. Male genitalia, x 87.
 Figure 7. Inner surface of clasper, x 115.
 Figure 8. Fifth-stage nymph, x 50.
 Figure 9. Ornamentation of membrane, x 650.
 Figure 10. Apex of tarsus, x 345.
 Figure 11. Setae of dorsum, x 460.
 Figure 12. First-stage nymph, x 140.

(Drawings by Sara Hoke DeBord.)



Fourth-stage nymph.—Differing from fifth stage as follows: Length, 0.75 mm.; brownish color slightly more restricted; 1 pair of transverse sclerotic plates on mesothorax; setae on sclerotic plates and wing pads less numerous and smaller but same number of sectasetae on apex of hind wing pads and on all abdominal processes except posterior one, which has 5 (or 4, and a marginal one replaced by a seta); antennal segment 2 without small setae and segment 3 lacking 1 whorl of sectasetae; legs without tibio-tarsal articulation, with fewer setae, 3 sensoria at base and 1 near center of each femur; posterior tibio-tarsi about one-sixth longer than others; inner pores of circumanal ring very indistinct.

Third-stage nymph.—Differing from fourth stage as follows: Length, 0.55 mm.; sectasetae less numerous generally, only 3 on posterior and penultimate processes and 2 on each of next 3 processes; other setae of dorsum less numerous; second antennal segment poorly separated from third, with a minute seta, distal segment with only 2 sectasetae; middle and posterior femora each with only 2 sensoria near base, each femur with none near center; posterior tibio-tarsi only slightly longer than others; ornamentation of derm smaller and less distinct, mostly spinelike or in points.

Second-stage nymph.—Differing from third stage as follows: Length, 0.40 mm.; brownish only on prothorax and on median part of abdomen posteriorly; posterior 7 abdominal segments sclerotized dorsally, forming 1 sclerotic plate with a faint membranous median division through anterior 3; wing pads merely bulges in derm; sectasetae sparse, 1 at apex of hind wing pads; 2 on each of posterior 2 processes and 1 on each of next 3 processes; no ornamentation on dorsum; antennae 2-segmented, terminal segment with a sensorium at base without small setae or sectasetae; elongate setae less numerous on legs and venter.

First-stage nymph.—Differing from second stage as follows: Length, 0.32 mm.; no brown color; no sclerotic plates, dorsum rather uniformly sclerotized; first antennal segment with 1 seta; all tibio-tarsi practically of same length; wing pads not differentiated; marginal sectasetae sparse, 2 on head and only 1 on any other segment, 1 submedian pair on head and 1 on mesothorax; other setae less numerous.

Egg (in female).—Partially collapsed but approximately 0.18 mm. long, apparently strongly narrowed at one end and broadly rounded at the other, the stalk somewhat thumblike, located near broader end of egg.

Described from dry, liquid, and slide-mounted specimens consisting of holotype male, allotype female, and more than 200 paratypes collected by Mrs. D. Soyer from *Gossypium* sp. at Gandajika, Belgian Congo, November 1941 and 1942, Number 381. Type specimens are in the collection of the United States National Museum.
